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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,930	07/21/2005	Youichirou Sugino	052805	9553

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EXAMINER

HON, SOW FUN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

07/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/542,930

**Applicant(s)**

SUGINO ET AL.

**Examiner**

SOPHIE HON

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5/01/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-4 and 6-14 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4, 9-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

***Withdrawn Rejections***

1. The 35 U.S.C. 103(a) rejections of claims 1-5, 9-15 over Matsumoto in view of Kitamura as the primary combination of references are withdrawn due to Applicant's amendment dated 05/01/09.

***New Rejections***

***Claim Objections***

2. Claim 12 is objected to because of the following informalities. The phrase "polarizing plate" should be substituted for the recitation of "adhesive for polarizing plate" since claim 12 has been amended to depend on claim 4 which positively recites a polarizing plate. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 2- 4, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto2 (JPO Website Machine English Translation of JP 07-134212) in view of Matsumoto5 (US 7,136,225), as evidenced by Asai (JPO Website Machine English Translation of JP 07-268300).

Regarding claims 2, 4, 13, Matsumoto2 teaches a polarizing plate ([0006]) in which a transparent protective film ([0009]) is provided on at least one surface of a polarizer with an adhesive layer, wherein the adhesive layer is formed with an adhesive for polarizing plate (glue line, [0016]) comprising a crosslinking agent comprising glyoxal (abstract), in an amount within a range of 2 to 50 parts by weight relative to 100 parts by weight of a polyvinyl alcohol-based resin (abstract), which contains the claimed range of more than 30 parts by weight and 46 parts by weight or less. Matsumoto2 fails to teach that the polyvinyl alcohol-based resin is a polyvinyl alcohol modified by an acetoacetyl group.

However, Matsumoto2 teaches that the polyvinyl alcohol-based resin can be a polyvinyl alcohol that is modified (etc., other functional groups, [0011]).

Matsumoto5 teaches that a polyvinyl alcohol that is modified with an acetoacetyl group can be used in place of an unmodified polyvinyl alcohol in an adhesive (column 4, lines 37-45) for a polarizing plate (column 2, lines 32-40), for the purpose of providing an adhesive layer that has improved water-resistance, as evidenced by Asai.

Asai teaches that a polyvinyl alcohol that is modified with an acetoacetyl group provides an adhesive layer with improved water-resistance (To introduce acetoacetyl groups into the adhesive, acetoacetylated polyvinyl alcohol is used, CONSTITUTION, abstract, To obtain an adhesive excellent in water resistance by mixing ... to give an acetoacetyl group content in a specified range, PURPOSE, abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a polyvinyl alcohol that has an acetoacetyl

group, in place of the unmodified polyvinyl alcohol, as the polyvinyl alcohol-based resin in the adhesive for polarizing plate of Matsumoto2, in order to obtain improved water-resistance, as taught by Matsumoto5, as evidenced by Asai.

In addition, Matsumoto2 teaches that a thickness of the adhesive layer for polarizing plate, is within the range of 5,000 nm or less (5 micrometers, [0015]), but fails to specify the much narrower range of from 1 to 95 nm.

However, Matsumoto5 teaches that the thickness of the adhesive layer for a polarizing plate can be as thin as from about 10 nm to 50 nm (0.01  $\mu\text{m}$ , 0.05  $\mu\text{m}$ , column 4, lines 60-67), which is within the claimed range of from 1 to 95 nm, for the purpose of providing the desired reduction in weight and minimal optical interference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the adhesive layer in the polarizing plate of Matsumoto2, with a thickness that is within a range of 1 nm to 95 nm, as taught by Matsumoto5, in order to provide the desired reduction in weight and minimal optical interference.

Regarding claim 3, Matsumoto2 teaches that the polarizer is a polyvinyl alcohol-based polarizer (system, [0006]) and that the transparent protective film is a cellulose-based transparent protective film ([0009]).

Regarding claim 12, Matsumoto2 is silent regarding the retardation value in a film thickness of the transparent protective film of the polarizing plate.

However, a transparent protective film of a polarizing plate is commonly selected to have optical isotropy at least in the film thickness direction, where the retardation

value in the film thickness direction is ideally zero, and hence within the claimed range of from - 90 nm to + 75 nm, for the purpose of minimizing optical interference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the transparent protective film of the polarizing plate of Matsumoto2, with a retardation value in a film thickness that is within a range of from - 90 nm to + 75 nm, in order to minimize optical interference.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto2 in view of Matsumoto5, as evidenced by Asai, as applied to claims 2-4, 12-13 above, and further in view of Saiki (US 2002/0075428).

Matsumoto2, as modified by Matsumoto5, as evidenced by Asai, teaches the polarizing plate comprising an adhesive layer comprising polyvinyl alcohol-based resin, as described above. Matsumoto2 fails to teach an optical film comprising the polarizing plate, or an image display comprising the optical film or the polarizing plate itself.

However, Saiki teaches that a polarizing plate comprising an adhesive layer comprising polyvinyl alcohol-based resin ([0042]) is commonly included in an optical film (member, [0043]), and is disposed in an image display comprising the optical film or the polarizing plate itself, for the purpose of providing the display with the desired polarized light ([0062]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have disposed the polarizing plate of Matsumoto2, as modified by Matsumoto5, as part of an optical film in an image display, in order to provide the display with the desired polarized light, as taught by Saiki.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto2 in view of Matsumoto5, as evidenced by Asai, as applied to claims 2-4, 12-13 above, and further in view of Kitamura (JPO Website Machine English Translation of JP 07-198945).

Matsumoto2, as modified by Matsumoto5, as evidenced by Asai, teaches the polarizing plate comprising an adhesive layer comprising polyvinyl alcohol-based resin having an acetoacetyl group, and a crosslinking agent in an amount that is within a range of more than 30 parts by weight and 46 parts by weight or less, wherein the crosslinking agent is glyoxal, as described above. Matsumoto2 fails to teach that the crosslinking agent can also be a compound having a methylol group.

However, Kitamura teaches that the crosslinking agent for a polyvinyl alcohol-based resin can comprise a compound having a methylol group instead of glyoxal (alkylation methylol urea, [0023]) for the purpose of providing the desired crosslinking behavior.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a compound having a methylol group, instead of glyoxal, as the crosslinking agent in the adhesive for polarizing plate of Matsumoto2, as modified by Matsumoto5, in order to obtain the desired crosslinking behavior, as taught by Kitamura.

***Response to Arguments***

***Response to Affidavit***

6. The affidavit under 37 CFR 1.132 filed May 1<sup>st</sup>, 2009 has been fully considered and deemed unpersuasive.

7. The demonstration of unexpected results by the affidavit, for the combined weight range of the crosslinking agent in the adhesive composition comprising polyvinyl alcohol-base resin having an acetoacetyl group, and the thickness range of the adhesive layer, specifically in terms of superior peeling resistance after immersion in warm water, resistance of the polarizer to degeneration in polarization dye after immersion in water, and appearance with respect to in-plane uniformity of light polarization, is only shown for the combination of a crosslinking agent from the group of glyoxal and a compound having a methylol group, with a polyvinyl alcohol-based resin having a combination of:

- (i) An acetoacetyl group with an acetoacetylation degree of 5 mole %;
- (ii) A saponification degree of 98.5%; and
- (iii) An average polymerization degree of 1200.

Asai is evidence that: (i) the percentage of acetoacetyl groups in the polyvinyl alcohol (CONSTITUTION, Abstract, [0011]) and hence the acetoacetylation degree; and (ii) the saponification degree of the polyvinyl alcohol ([0010]); are critical variables in the water resistance ([0010-0011]) and hence performance of the adhesive layer.



Tokumo (US 4,824,696) is evidence that: (iii) the average degree of polymerization of the polyvinyl alcohol-based resin is a critical variable in the adhesive strength (column 4, lines 47-60) and hence performance of the adhesive layer.

Therefore, the demonstration of unexpected results by the affidavit is not deemed to be commensurate with the scope of the present claims.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/  
Examiner, Art Unit 1794